

Remarks

Claims 1-3, 5-7, 12-16, 22, 23, 25, 27-30, 34, 45-47, 99-114 remain in the present application for the Examiner's review and consideration. Claims 4, 8-11, 17-21, 24, 26, 31-33, 35-44, and 48-50 have been previously withdrawn. Claims 51-98 have been previously canceled.

Applicants appreciate the withdrawal of the prior rejections under 35 U.S.C. §§ 102 and 103.

Claim 101 has been amended to recite that "the valve components cooperate with each other to open the internal seal in each valve component." This amendment reads on the elected Species I as depicted in Figs. 1a-1c. Accordingly, no new matter has been added.

Based on the above amendment and the following remarks, Applicants respectfully request that the Examiner reconsider all outstanding rejections and that they be withdrawn.

Rejections under 35 U.S.C. § 103(a)

Claims 1-3, 5-7, 12-16, 22, 23, 25, 27-30, 34, 45-47, and 99-113 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Franklin (U.S. Patent No. 6,824,011) in view of Powell *et al.* (U.S. Patent No. 6,135,150). Claims 1-3, 5-7, 12-16, 22, 23, 25, 27-30, 34, 45-47, and 99-113 are also rejected under 35 U.S.C. § 103(a) as being unpatentable over Prasad *et al.* (U.S. Patent No. 6,924,054) in view of Powell *et al.* Claim 114 is rejected under 35 U.S.C. § 103(a) as being unpatentable over either Franklin or Prasad *et al.* in view of Powell *et al.* as applied to claim 101, and further in view of Kojak, III (U.S. Patent No. 4,672,998).

Applicants respectfully traverse the conclusion that the claimed invention is unpatentable under 35 U.S.C. § 103(a). A person of ordinary skill in the art at the time of the invention would not have been motivated to employ the valve assembly disclosed in Powell *et al.* with the fuel cell systems disclosed either in Franklin or Prasad *et al.* to arrive at the present invention, given the complex mechanical structure of the Powell *et al.* valve assembly. Particularly, as discussed in greater detail below, pending independent claims 1 and 101 recite a valve comprising two valve components that cooperate with each other to open the internal seal in each valve component, whereas the Powell *et al.* reference discloses a multi-component valve assembly including a transfer tube abutting two different valves.

Under the Patent Act, a patent may not be granted if “the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains.” 35 U.S.C. § 103(a). Recently, the Supreme Court of the United States extensively opined about the legal standard for obviousness in the case of *KSR Int’l Co. v. Teleflex Inc.*, 127 S. Ct. 1727 (U.S. 2007). Justice Anthony Kennedy, writing for an unanimous Supreme Court, stated:

Often, it will be necessary for a court to look to interrelated teachings of multiple patents; the effects of demands known to the design community or present in the marketplace; and the background knowledge possessed by a person having ordinary skill in the art, all in order to determine whether there was an apparent reason to combine the known elements in the fashion claimed by the patent at issue. To facilitate review, this analysis should be made explicit. See *In re Kahn*, 441 F.3d 977, 988 (C.A.Fed.2006) (“[R]ejections on obviousness grounds cannot be sustained by mere conclusory statements; instead, there must be some articulated reasoning with some rational underpinning to support the legal conclusion of obviousness”). As our precedents make clear, however, the analysis need not seek out precise teachings directed to the specific subject matter of the challenged claim, for a court can take account of the inferences and creative steps that a person of ordinary skill in the art would employ.

(emphasis supplied). *Id.* at 1741. Accordingly, the Court encouraged the use of common sense in reaching conclusions of obviousness, explaining, “[r]igid preventative rules that deny factfinders recourse to common sense, however, are neither necessary under our case law nor consistent with it.” *Id.* at 1742-43.

Applying the Supreme Court’s reasoning in the *KSR* opinion to this case, Applicants respectfully submit that a person of ordinary skill in the art with common sense at the time of the invention would not be able to derive the presently claimed invention from a combination of the cited prior art references. Applicants concur with the Examiner’s assessment of the deficiencies of the primary Franklin and Prasad *et al.* references. The Franklin reference discloses an integrated fuel cell power system comprising a fuel distribution manifold containing valves 52, 54 that engage with complementary valve 44 on a fuel supply unit(s) to receive fuel (see col. 2, ln. 9-20 and FIGS. 3A and 4). Although the Franklin reference discloses that valves 44, 52, 54 are “self-sealing” valves, it fails to disclose the particular self-sealing mechanism recited in independent claim 1, *i.e.* a biased slidable inner body cooperating with a sealing member to form an internal seal in each valve component. Further, the Franklin reference does not disclose that fuel distribution manifold valves 52, 54 and fuel supply unit valve 44 form an inter-component

seal, as required by claim 1, but merely states that the two valve types “engage” each other (col. 2, ln. 15-16).

The Prasad *et al.* reference discloses a fuel supply that is configured to fit within a receptacle disposed on an electronic device that interfaces with a fuel cell (col. 3, ln. 7-10). More particularly, when the fuel supply is inserted into a receptacle, a needle 68 (situated in the receptacle) automatically penetrates a septum 66 of a septum/ball-and-spring valve system (situated in the fuel supply) and pushes ball 70 away from the inside surface of septum 66, as discussed at col. 6, ln. 34 – col. 7, ln. 2 and illustrated in FIG. 2. Needle 68, as shown in FIG. 2 of the Prasad *et al.* reference, is not the valve component claimed in pending independent claim 1, which includes a housing and a slidable inner body.

The deficiencies of either the Franklin or Prasad *et al.* references can not be overcome by the secondary Powell *et al.* reference. More particularly, the detailed analysis below demonstrates that Powell *et al.*’s disclosure of a complex valve assembly for filling gas cylinders is inapposite to the two-component valve for a fuel cell that produces electricity for an electronic device, as recited in the pending claims.

Pending independent claim 1 recites, among other things, that “the first valve component and the second valve component form an inter-component seal [and] the valve components cooperate with each other to open the internal seal in each valve component.” These two claim elements are schematically illustrated by Figs. 1a-1c (reproduced below), which depict (i) the formation of an inter-component seal between first valve component 12 and o-ring 36 of second valve component 14; and (ii) the cooperation of the two valve components 12 and 14 to open the internal seal in each valve component.

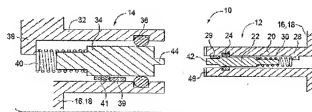


FIG. 1(a)

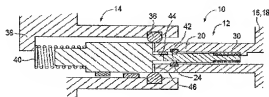


FIG. 1(b)

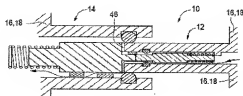


FIG. 1(c)

The elements of claim 1 are not taught by the cited prior art references including, in particular, Powell *et al.*, which concerns a valve assembly 116 for filling gas cylinders comprising an inlet valve 201, an outlet valve 202, and a transfer tube 230, as shown in FIG. 1a (reproduced below).

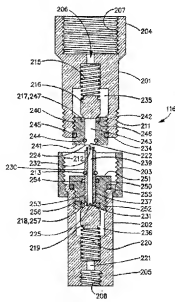


FIGURE 1a

The valve assembly, as described in Powell *et al.*, is structurally different than the valve recited in pending claim 1. In Powell *et al.*, inlet valve 201 and outlet valve 202 do not establish an inter-component seal or cooperate with each other to open internal seals, as claimed in pending claim 1. Rather, in Powell *et al.*, any connection between inlet valve 201 and outlet valve 202 is facilitated by means of a transfer tube 230. The Powell *et al.* reference, at col. 3, line 63 – col. 4, line 8, describes the following:

Coupler 203 is rotated so that inlet and outlet valves 201, 202 are forced toward each other. As this occurs, transfer tube 230 inserts into inlet port 206, passing seals 244 and forming a sealed connection between the outer walls of transfer tube 230 and either the walls of bore 235 or the walls of insert 240. As coupler 203 is further rotated, transfer tube end 224 engages and abuts first plug 216, and o-ring 213 abuts face 241, preventing transfer tube 230 from moving any further into inlet valve 201 and forcing end 225 to abut and exert pressure on plug 219. As coupler 203 continues to rotate, transfer tube ends 224, 225 exert additional pressure against plugs 216, 219 until plugs 216, 219 disengage seats 217, 218.

(emphasis supplied). Hence, it is clear that the actions of transfer tube 230 (and not valves 201, 202) are responsible for opening or closing any seals in valve assembly 116. Additionally, a reasonable person of ordinary skill in the art would readily understand that because the valve assembly of Powell *et al.* is designed for “filling gas cylinders,” it is inapposite to fuel cell systems, which require valves having much smaller dimensions.

It should also be noted the combination of Franklin and Powell *et al.* also fails to disclose another claim element recited in claim 1, *i.e.* “a fuel cell adapted to provide electricity for an electronic device,” because neither reference even mentions the term “electronic device.”

Applicants also would like to note that the combination of the two primary references, Franklin and Prasad *et al.*, would not lead to the invention recited in pending independent claim 1. For instance, a person of ordinary skill in the art would readily understand if a self-sealing valve from the Franklin reference (*i.e.* a fuel distribution manifold valve 52,54 or a complementary valve 44 on a fuel supply unit(s)) is configured in either the fuel supply or receptacle disclosed in the Prasad *et al.* reference, there would be no inter-component seal as recited in pending independent claim 1. More particularly, if a self-sealing valve from the Franklin reference were substituted for needle 68 in the Prasad *et al.* reference, that self-sealing valve would not be able to penetrate septum 66, and form an inter-component seal with, a septum/ball-and-spring valve system. Conversely, if a self-sealing valve from the Franklin

reference were substituted for a septum/ball-and-spring valve system in the Prasad *et al.* reference, a needle 68 would not be able to engage with self-sealing valve given that self-sealing valve lacks a septum 66, which can be penetrated, and a ball 70 that can be pushed.

Thus, for all the reasons above, claim 1 is not obvious over Franklin in view of Powell *et al.* or Prasad *et al.* in view of Powell *et al.*, and is patentable. Claims 2-3, 5-7, 12-16, 22, 23, 25, 27-30, 34 and 45-47 are dependent on allowable claim 1 and recite further limitations therefrom and therefore are also patentable. Applicants reserve the right to further support their patentability should that becomes necessary.

As amended, independent claim 101 recites, among other things, that “the valve components cooperate with each other to open the internal seal in each valve component.” As discussed in greater detail above, this claim element is not found in the Powell *et al.* reference, and thus there is no valid comparison between it and Applicants’ amended claim 101. Further, as also discussed above, the Franklin and Prasad *et al.* references do not overcome the deficiencies of the Powell *et al.* reference. Hence, claim 101 is not obvious over the prior art and is patentable. Claims 102-114 all depend upon allowable claim 101 and add further limitations thereto, and therefore are patentable for that reason alone. Applicants reserve the right to further support the patentability of these dependent claims, should that become necessary.

Conclusion

All of the stated grounds of rejection have been properly traversed, accommodated, or rendered moot. Applicants therefore respectfully request that the Examiner reconsider all presently outstanding rejections and that they be withdrawn. Applicants believe that a full and complete reply has been made to the outstanding Office Action and, as such, the present application is in condition for allowance. If the Examiner believes, for any reason, that personal communication will expedite prosecution of this application, the Examiner is invited to telephone the undersigned at the number provided.

A fee of \$810 is due for the attached Request for Continued Examination. Applicants believe that no other fees are due in connection with the submission of this Response. If any extension of time is required, it is hereby petitioned for under 37 C.F.R. § 1.136, and if any other

required fee is due, the Commissioner may charge appropriate fees to H.T. Than Law Group, Deposit Account No. 50-1980.

Respectfully submitted,

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/H.T. Than/

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Attachments:

Request for Continued Examination Transmittal Form (SB-30)